GENERAL NOTES

1. DO NOT SCALE DRAWINGS
2. REPORT ALL CHANGES OR DISCOVERED ITEMS NOT DOCUMENTED TO THE OWNER AND THE ELECTRICAL ENGINEER.
3. ELECTRICAL NOTES & GENERAL WIRING NOTES TAKE PRECEDENCE OVER ANY CONFLICTS WITH SPECIFICATIONS.

LEGEND

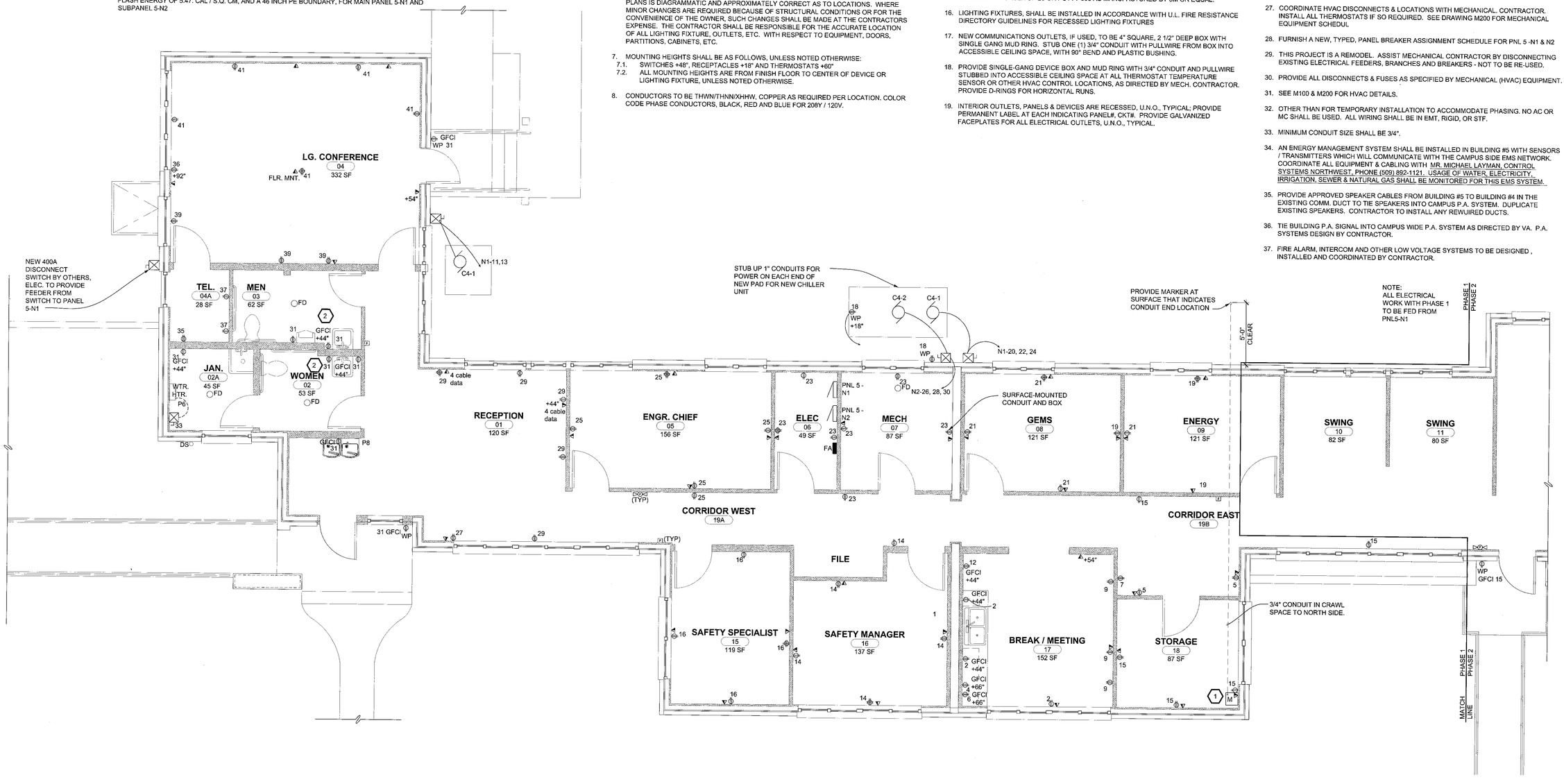
- DATA OUTLETS (3 PAIR) (3 JACKS)
- RECEPTACLE
- QUAD RECEPTACLE
- J-BOX
- VISUAL / SOUNDER FIRE
- PULL STATION

ELECTRICAL NOTES

1. SMART METER SYSTEM TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
2. INSTALL GFCI RECEPTACLE UNDER SINK FOR ELECTRIC FAUCET CONTROL
3. ALL BRANCH CIRCUITS SHOWN IN PHASE ONE ARE TO BE FED FROM NEW PANEL 5-N1; LOCATED IN ELECTRICAL ROOM (RM #6). WHILE HOME RUNS ARE NOT SHOWN, CONTRACTOR CAN COMBINE 3 HOME RUNS PER CONDUIT. ANY HOME RUNS WITH 4 OR MORE CURRENT CARRYING CONDUCTORS, THE CONDUCTOR SIZE MUST BE DE-RATED PER NEC. FURTHERMORE, EACH BRANCH CIRCUIT MUST HAVE ITS OWN NEUTRAL CONDUCTOR RUN FROM THE PANEL, NO SHARING OF A NEUTRAL CONDUCTOR BETWEEN BRANCH CIRCUITS IS ALLOWED PER OWNER REQUIREMENTS. EACH NEUTRAL SHALL BE IDENTIFIED AS TO ASSOCIATED PHASE BY SOLID COLOR WHITE WITH COLORED STRIPE (I.E. BLACK, BLUE, OR RED STRIPE).

CALCULATED ARC FLASH PARAMETER FOR MAIN PANEL 5-N1

USING A SIMPLIFIED METHOD, BASED ON IEEE 1584,ASSUMING A 1000KVA TRANSFORMER WITH 5.3% IMPEDANCE, (2) 3/0 FEEDERS PER PHASE, 100 FT IN PVC, CALCULATED ARC FAULT CURRENT IS 7,179 AMPS. THIS RESULTS IN A 18 INCH WORKING DISTANCE, CALCULATED ARC FLASH ENERGY OF 5.47. CAL / S.Q. CM, AND A 46 INCH PE BOUNDARY, FOR MAIN PANEL 5-N1 AND SUBPANEL 5-N2



GENERAL WIRING NOTES

1. THIS INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF ELECTRICAL CODE (NFPA-70). '08 EDITION) AS AMENDED BY WAC 296-46B. CONTRACTOR SHALL BE FAMILIAR WITH, LICENSED TO PERFORM, & EXPERIENCED WITH SUCH WORK INDICATED HEREIN, & BE QUALIFIED TO MEET MOST RECENT OSHA CERTIFICATION TO WORK ON ENERGIZED EQUIPMENT. CONTRACTOR IS RESPONSIBLE FOR DETERMINING SAFETY REQUIREMENTS;REFER TO & COMPLY WITH OSHA 29 CFR 1910 & 1926 ELECTRICAL SAFETY PORTIONS. CONTRACTOR RESPONSIBLE FOR DETERMINING CONSTRUCTION METHOD AND MEANS REQUIREMENTS. ELECTRICAL WORKMANSHIP SHALL COMPLY WITH ANSI / NECA 1-2006.
2. CONTRACTOR SHALL COORDINATE ELECTRICAL PERMITS AND INSPECTIONS WITH VA. CONTRACTOR SHALL COORDINATE POWER OUTAGES AND INSPECTIONS WITH VA.
3. ALL WORK SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER. ALL LABOR, MATERIAL, TOOLS, PERMITS, ETC. REQUIRED FOR A COMPLETE INSTALLATION SHALL BE FURNISHED BY THIS CONTRACTOR, WHETHER SHOWN ON DRAWINGS OR NOT.
4. BY THE ACT OF SUBMITTING A BID THE CONTRACTOR SHALL BE DEEMED TO HAVE EXAMINED THE SITE AND ALL STRUCTURAL, ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND TO HAVE ACCEPTED EXISTING CONDITIONS AND INCLUDED ALLOWANCES FOR THEM IN THE BID. ANY CONTRADICTIONS, DISCREPANCIES OR DESIGN WORK WHICH DOES NOT MEET CODE OR WILL NOT FUNCTION AS INTENDED SHALL BE REPORTED TO THE ENGINEER IN WRITING FOLLOWING ESTABLISHED RFI PROCESS PRIOR TO THE BID. IF CONTRACTOR DOES NOT REPORT ANY DISCREPANCIES THEN CONTRACTOR WILL BE HELD RESPONSIBLE FOR COMPLETE ELECTRICAL SYSTEM AND MAKE ANY REQUIRED CHANGES AT NO ADDITIONAL COST.
5. CONTRACTOR TO PERFORM FIELD WALKDOWN / VERIFICATION PRIOR TO BIDDING AND PERFORMING WORK. ANY DISCREPANCIES NOTED DURING FIELD WALKDOWN TO BE DISCUSSED WITH ENGINEER FOR DISPOSITION.
6. THE GENERAL ARRANGEMENT OF OUTLETS AND OTHER EQUIPMENT AS SHOWN ON THE PLANS IS DIAGRAMMATIC AND APPROXIMATELY CORRECT AS TO LOCATIONS. WHERE MINOR CHANGES ARE REQUIRED BECAUSE OF STRUCTURAL CONDITIONS OR FOR THE CONVENIENCE OF THE OWNER, SUCH CHANGES SHALL BE MADE AT THE CONTRACTORS EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURATE LOCATION OF ALL LIGHTING FIXTURE, OUTLETS, ETC. WITH RESPECT TO EQUIPMENT, DOORS, PARTITIONS, CABINETS, ETC.
7. MOUNTING HEIGHTS SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:
   - 7.1. SWITCHES +48", RECEPTACLES +18" AND THERMOSTATS +60"
   - 7.2. ALL MOUNTING HEIGHTS ARE FROM FINISH FLOOR TO CENTER OF DEVICE OR LIGHTING FIXTURE, UNLESS NOTED OTHERWISE.
8. CONDUCTORS TO BE THWN/THNN/XHHW, COPPER AS REQUIRED PER LOCATION. COLOR CODE PHASE CONDUCTORS, BLACK, RED AND BLUE FOR 208Y / 120V.
9. UNLESS NOTED OTHERWISE, EQUIPMENT WITH CIRCUIT AND PANEL IDENTIFICATION ARE 3 NO. 12-3/4" CONDUIT. 20A, 120V CIRCUITS GREATER THAN 100' IN LENGTH TO BE NO.10 AWG.
10. ALL CONDUITS SHALL HAVE A "GREEN" INSULATED GROUND WIRE INSTALLED WITH THE CONDUCTORS. THE GROUND WIRE SHALL BE SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND MAY NOT BE INDICATED ON THE PLANS. INSTALL NYLON PULL TAPE OR ROPE IN ALL EMPTY CONDUIT.
11. MINIMUM CONDUIT SIZE SHALL BE 3/4" UNLESS OTHERWISE NOTED ON THE DRAWINGS. RACEWAYS SHALL BE RUN CONCEALED IN OFFICE AND FINISHED AREAS OF NEW CONSTRUCTION. WHERE CONDITIONS DICTATE (EXISTING MASONRY WALLS), EXPOSED SURFACE RACEWAY SHALL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES.
12. INTERIOR CONDUITS RUN CONCEALED OR SURFACE MOUNTED TO BE EMT. FINAL RACEWAY CONNECTIONS TO EQUIPMENT TO BE RIGID CONDUIT, OR AS ALLOWED BY THE NEC. EXTERIOR UNDERGROUND CONDUITS TO BE RIGID PVC OR PVC-COATED RIGID METALLIC CONDUIT.
13. ALL PULL, JUNCTION, AND SPLICE BOXES SHALL BE SIZED. FURNISHED AND INSTALLED PER THE NATIONAL ELECTRICAL CODE WHETHER INDICATED OR NOT. SEE V.A. ELECTRICAL STANDARDS.
14. SPECIFIC ELECTRICAL EQUIPMENT (PANELS, DISCONNECTS, ETC.) ARE TO BE DESIGNATED WITH AN EQUIPMENT IDENTIFIER, PER V.A. STANDARDS. A NAMEPLATE SHALL BE INSTALLED ON EACH UNIT INDICATING IDENTIFIER, VOLTAGE AND PHASE. NAMEPLATE SHALL BE PHENOLIC ENGRAVED TYPE WITH BLACK LETTERING ON WHITE BACKGROUND, 1/4" MINIMUM TEXT HEIGHT.
15. SEAL ALL BUILDING PENETRATIONS WITH SILICONE SEALANT. WHERE CONDUITS PENETRATE A WALL, FLOOR OR CEILING, THE OPENING AROUND THE CONDUIT SHALL BE SEALED WITH CAULK OP 25 OR PUTTY 303 AS MANUFACTURED BY 3M OR EQUAL.
16. LIGHTING FIXTURES, SHALL BE INSTALLED IN ACCORDANCE WITH U.L. FIRE RESISTANCE DIRECTORY GUIDELINES FOR RECESSED LIGHTING FIXTURES
17. NEW COMMUNICATIONS OUTLETS, IF USED, TO BE 4" SQUARE, 2 1/2" DEEP BOX WITH SINGLE GANG MUD RING. STUB ONE (1) 3/4" CONDUIT WITH PULLWIRE FROM BOX INTO ACCESSIBLE CEILING SPACE, WITH 90° BEND AND PLASTIC BUSHING.
18. PROVIDE SINGLE-GANG DEVICE BOX AND MUD RING WITH 3/4" CONDUIT AND PULLWIRE STUBBED INTO ACCESSIBLE CEILING SPACE AT ALL THERMOSTAT TEMPERATURE SENSOR OR OTHER HVAC CONTROL LOCATIONS, AS DIRECTED BY MECH. CONTRACTOR. PROVIDE D-RINGS FOR HORIZONTAL RUNS.
19. INTERIOR OUTLETS, PANELS & DEVICES ARE RECESSED, U.N.O., TYPICAL; PROVIDE PERMANENT LABEL AT EACH INDICATING PANEL#, CKT#. PROVIDE GALVANIZED FACEPLATES FOR ALL ELECTRICAL OUTLETS, U.N.O., TYPICAL.
20. ALL COMPONENT, DEVICE, MATERIAL & EQUIPMENT FURNISHED OR PROVIDED UNDER THIS SECTION SHALL BE NEW & ORIGINAL COMMERCIAL GRADE ITEMS, MANUFACTURED WITHIN THE LAST TWO YEARS, AND LISTED & LABELED PER NEC 90.7 & 110.3 TO U.L. OR EQUIVALENT FOR IT'S INTENDED PURPOSE, SUITABLE FOR ITS USE AND SHALL COMPLY WITH SPECIFICATIONS, DRAWINGS AND GENERAL CONDITIONS AND SHALL BE INSTALLED PER MANUFACTURERS WRITTEN INSTRUCTIONS, OPERATE PER DESIGN INTENT, BE UNDAMAGED, AND HAVE MANUFACTURERS FULL WARRANTY IN EFFECT AT THE DATE OF FINAL ACCEPTANCE OF THIS WORK.
21. ALL CONDUCTORS SHALL BE SIZED TO 2008 NEC, PER AWG & AMPACITY SHALL BE 75 DEG. C COPPER WIRE w/ 60 DEG. C TERMINAL UP TO 100 AMPS, 75 DEG. C WIRE & TERMINAL THEREAFTER, #10 & SMALLER SOLID, #8 & OVER STRANDED THHN / THWN TYPICAL.
22. FOR PARALLEL RUNS, EACH CONDUIT MUST CONTAIN FULL-SIZED GEC FOR THE CIRCUIT.
23. SIZES & COMBINATIONS ARE SUGGESTED ONLY AND SHOWN AS CONVENIENCE, MATCH MANUFACTURERS NAMEPLATE LOAD RATING AND USE NEC TABLES.
24. WHERE POWER WIRES ARE OVERSIZED DUE TO VOLTAGE DROP OR OTHER REASONS, ADD PROPORTIONAL AMOUNT IN CM-AREA TO EGC.
25. MINIMUM CONDUCTOR SIZE FOR LIGHT AND BRANCH CIRCUIT POWER SHALL BE #12 AWG COPPER (THHN (DAMP-DRY) THWN (WET)). MINIMUM CONDUCTOR SIZE FOR CONTROL SHALL BE #14 AWG COPPER U.O.N. PROVIDE #10 AWG MIN. IN 1" PVC FOR EXTERIOR LIGHTING CIRCUITS.
26. CONTRACTOR SHALL LIMIT THE VOLTAGE DROP OF FEEDERS TO 2% & LIMIT THE VOLTAGE DROP OF BRANCH CIRCUITS TO 3% (LIMIT THE COMBINATION ABOVE TO 5% TOTAL VOLTAGE DROP). IN NO CASE SHALL ANY CONDUIT HAVE BENDS TIGHTER THAN 8 X CONDUIT DIA.
27. COORDINATE HVAC DISCONNECTS & LOCATIONS WITH MECHANICAL. CONTRACTOR. INSTALL ALL THERMOSTATS IF SO REQUIRED. SEE DRAWING M200 FOR MECHANICAL EQUIPMENT SCHEDUL
28. FURNISH A NEW, TYPED, PANEL BREAKER ASSIGNMENT SCHEDULE FOR PNL 5 -N1 & N2
29. THIS PROJECT IS A REMODEL. ASSIST MECHANICAL CONTRACTOR BY DISCONNECTING EXISTING ELECTRICAL FEEDERS, BRANCHES AND BREAKERS - NOT TO BE RE-USED.
30. PROVIDE ALL DISCONNECTS & FUSES AS SPECIFIED BY MECHANICAL (HVAC) EQUIPMENT.
31. SEE M100 & M200 FOR HVAC DETAILS.
32. OTHER THAN FOR TEMPORARY INSTALLATION TO ACCOMMODATE PHASING. NO AC OR MC SHALL BE USED. ALL WIRING SHALL BE IN EMT, RIGID, OR STF.
33. MINIMUM CONDUIT SIZE SHALL BE 3/4".
34. AN ENERGY MANAGEMENT SYSTEM SHALL BE INSTALLED IN BUILDING #5 WITH SENSORS / TRANSMITTERS WHICH WILL COMMUNICATE WITH THE CAMPUS SIDE EMS NETWORK. COORDINATE ALL EQUIPMENT & CABLING WITH MR. MICHAEL LAYMAN, CONTROL SYSTEMS NORTHWEST, PHONE (509) 892-1121. USAGE OF WATER, ELECTRICITY, IRRIGATION, SEWER & NATURAL GAS SHALL BE MONITORED FOR THIS EMS SYSTEM.
35. PROVIDE APPROVED SPEAKER CABLES FROM BUILDING #5 TO BUILDING #4 IN THE EXISTING COMM. DUCT TO TIE SPEAKERS INTO CAMPUS P.A. SYSTEM. DUPLICATE EXISTING SPEAKERS. CONTRACTOR TO INSTALL ANY REWUIRED DUCTS.
36. TIE BUILDING P.A. SIGNAL INTO CAMPUS WIDE P.A. SYSTEM AS DIRECTED BY VA. P.A. SYSTEMS DESIGN BY CONTRACTOR.
37. FIRE ALARM, INTERCOM AND OTHER LOW VOLTAGE SYSTEMS TO BE DESIGNED , INSTALLED AND COORDINATED BY CONTRACTOR.

POWER PLAN
SCALE: 1/4" = 1'-0"

NORTH

ARCULUS
DESIGN & TECHNICAL SERVICES
6855 W. CLEARWATER AVE., STE. K
KENNEWICK, WA 99336
PH: 509-783-0123 FX: 509-783-2345

THOMAS R. PARKHILL — STATE OF WASHINGTON — 25782 — REGISTERED PROFESSIONAL ENGINEER
4-12-12

SPOKANE VETERANS ADMINISTRATION BUILDING #5 RENOVATION

POWER PLAN (PHASE 1)

CONSTRUCTION SET

DRAWN	LKK/BCB		
CHECKED	SMM/TRP	DATE	4-12-2012
PM	SMM	PROJECT	1001H

E101

SHEET 14 OF 18